



**Chandler • Arizona**  
Where Values Make The Difference

# Civil Engineering Sewer and Reclaimed Water Plan Review Checklist

Log No.: \_\_\_\_\_

C.I.P. No.: \_\_\_\_\_

Project:	
Location:	

Legend	
/	Requirement satisfied.
O	Requirement not satisfied.
?	Unable to determine status, more information is required.
X	Not applicable.

Review #	Reviewed By	Date
1		
2		
3		
4		
5		

The requirements referred to on the checklist can be found in the City Code, Chapter 48 (Subdivisions) and the City's Technical Design Manuals.

Item	Requirement	Comments
1.	The improvement plans must be submitted on 24" x 36" sheets. Please resubmit plans on correct size sheets.	
2.	Show the scale on each sheet. See <i>Technical Design Manual 2 - Wastewater and Reclaimed Water System Design</i> , for requirements.	
3.	The minimum height of all text and symbols must be 0.1" (one tenth of one inch).	
4.	Add the following on the lower right of the cover sheet over the title block:  <b>C.O.C. Log No.</b> _____	

Mailing Address:  
P.O. Box 4008, MS 406  
Chandler, Arizona 85244-4008

**Planning and Development Department**  
**Development Services Division**  
**Civil Engineering Plan Review Section**  
**215 E. Buffalo St., Chandler Arizona**

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Form No. UDM-29/Folder 460  
Rev. 4-19-06

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Item	Requirement	Comments
5.	Show the name of the proposed development on the cover sheet.	
6.	Show the developer's name, address, and telephone number on the cover sheet.	
7.	Show the engineer's name, address, and telephone number on the cover sheet.	
8.	A vicinity or site location map is required on the cover sheet.	
9.	An index map with the following information is required on the cover sheet:  A. Existing sewer system. B. Proposed sewer system. C. Pipe sizes. D. Sheet numbers. E. Direction of flows. F. Phase limits and numbers if applicable. G. Model home phase.	
10.	Add the following notes to the cover sheet:  <b>The outfall sewer line to be constructed with this subdivision passes through areas that will be completed at a later date. Suitable measures shall be taken to prevent debris from entering the sewer once it is in use.</b>  <b>Before pavement subgrade preparation on subsequent phases, the outfall sewer shall be plugged at the first downstream manhole. Upon completion of paving, the outfall sewer shall be vactored to prevent debris from entering the existing system and shall be reinspected for debris before acceptance.</b>	

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Item	Requirement	Comments
11.	<div>Add the following approval/coordination block to the cover sheet:</div> <div>A. For Capital Improvement Projects:</div> <div>APPROVED:</div> <div><div>DIRECTOR OF PUBLIC WORKS</div><div>DATE</div></div> <div>CITY ENGINEER</div> <div>DATE</div> <div>FOR COORDINATION:</div> <div><div>CITY LANDSCAPE ARCHITECT</div><div>DATE</div></div> <div>B. For all other projects:</div> <div>APPROVED FOR COMPLIANCE WITH CITY CODE:</div> <div><div>CITY ENGINEER</div><div>DATE</div></div> <div>DEVELOPMENT SERVICES</div> <div>DATE</div> <div>ENGINEER</div>	
12.	<div>Add the following approval block to the cover sheet:</div> <div>SANITARY SEWER APPROVED:</div> <div><div>MARICOPA COUNTY</div><div>DATE</div></div> <div>ENVIRONMENTAL SERVICES</div> <div>DEPARTMENT</div>	
13.	Acquire Maricopa County Environmental Services Department approval and signature for sanitary sewer.	
14.	<div>Add the following approval block to the cover sheet:</div> <div>RECLAIMED WATER APPROVED:</div> <div><div>MARICOPA COUNTY</div><div>DATE</div></div> <div>ENVIRONMENTAL SERVICES</div> <div>DEPARTMENT</div>	
15.	Acquire Maricopa County Environmental Services Department approval and signature for reclaimed water.	

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Item	Requirement	Comments
16.	<p>The current City standard notes must be shown, or corrected, on the cover or detail sheet:</p> <p>A. General Notes.</p> <p>B. Sewer Notes.</p> <p>C. Reclaimed Water Notes (if reclaimed water line design is included in the plans).</p>	
17.	<p>Coordinate the plans with all of the appropriate utility companies on the list below. Place a utility coordination block on the cover sheet. Show the names of the utility companies and the date plans were submitted to them.</p> <p>Air Products and Chemicals, Inc.  Arizona Public Service  AT&amp;T Telephone Long Distance  COX Cable  El Paso Natural Gas  Qwest  Roosevelt Water Conservation District (RWCD)  Salt River Project (power)  Salt River Project (SRVWUA)  Kinder Morgan Energy Partners  Southwest Gas  Sprint Telephone Long Distance</p>	
18.	<p>All elevations shown on the plans must be referenced to an approved City benchmark. The City's benchmark number (CMCN No.) and description must match verbatim the latest edition of the <i>City of Chandler Vertical Control Base List</i> and must be shown on the cover sheet.</p>	
19.	<p>The development is adjacent to a current City project/Improvement District. Coordinate your plans with the City Project/Improvement District Engineer. Add the following approval block to the cover sheet and acquire the engineer's signature.</p> <p align="center"> <b>APPROVED FOR COORDINATION      DATE</b>  (Add project name and number) </p>	
20.	<p>A portion of the improvements shown on the plans is within the jurisdiction of the state/county. Acquire the appropriate permit. Indicate the permit number on the cover sheet.</p>	

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Item	Requirement	Comments
21.	<p>A sewer service tap detail is required on the cover sheet showing the following items:</p> <p>A. Standard tap location in relation to side lot line.</p> <p>B. Minimum 6' separation between water and sewer services.</p> <p>C. Reference to MAG Standard Detail 440, Type "C".</p>	
22.	<p>Provide a manhole service tap detail on the cover sheet or detail sheet.</p>	
23.	<p>The sewer line sizes must conform to the City's wastewater master plan, both size and depth.</p>	
24.	<p>Show north arrows on each sheet.</p>	
25.	<p>Each sheet of the improvement plans must be sealed, including signature and date, by the engineer preparing the plans.</p>	
26.	<p>Show all existing sewer lines being tied into in both plan and profile views.</p>	
27.	<p>Show all proposed sewer lines in both plan and profile views.</p>	
28.	<p>Show phase limits and numbers on all applicable sheets.</p>	
29.	<p>If a model home area is a part of the project, construct sewer lines, as a minimum, from the point of outfall to and including the first manhole upstream from the model area.</p>	
30.	<p>Dimensional ties must be provided for all existing sewer lines being tied into. Providing both the street centerline station and the perpendicular distance (offset) from the street centerline usually satisfies this requirement.</p>	
31.	<p>Install the sewer line in the standard location. See the sewer system design manual for details. Where the sewer alignment is not parallel to the street centerline, the following requirements must be met:</p> <p>A. Sewer lines are only permitted to cross and re-cross the street centerline for short distances, providing that the sewer line maintains a horizontal clear distance of 3' or more from the lip of gutter on the side of the street of the standard sewer location.</p>	

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Item	Requirement	Comments
	<p>B. The sewer does not encroach more than 4' past the street centerline.</p> <p>C. Maintain the standard distance of the sewer from the street centerline at each manhole.</p>	
32.	<p>Construct a manhole wherever the sewer changes slope, horizontal alignment or size, or intersects another sewer. The following conditions also must be met:</p> <p>A. Sewer lines of different sizes entering the same manhole must not have their soffits lower than the soffit of the largest pipe.</p> <p>B. Sewer intersections must be between 90° and 180° inclusive.</p> <p>C. Sewer lines intersecting at an angle from 90° to less than 120° must have a 0.10' minimum drop across the manhole.</p> <p>D. For sewers greater than 15" in diameter, design inverts at junctions to maintain the energy gradient across the junction and to prevent backflow.</p>	
33.	<p>Show the following items on the plans:</p> <p>A. For existing and proposed manholes:</p> <ol style="list-style-type: none"> <li>1) Rim elevation. To the nearest 0.1' (one tenth of one foot) for proposed manholes.</li> <li>2) Invert elevations.</li> <li>3) Sewer station.</li> <li>4) Dimensional ties, i.e., station and offset, from the street centerline to manhole.</li> <li>5) Where a proposed manhole is constructed on an existing sewer, horizontal distance from the nearest downstream manhole and the slope of the existing sewer.</li> </ol> <p>B. Sewer station, invert elevation, and rim elevation of cleanout.</p> <p>C. Distance from centerline to centerline of manholes.</p> <p>D. Distance from centerline of manhole to centerline of cleanout.</p> <p>E. Standard detail number for manholes (MAG Standard Detail 420 and City of Chandler Standard Details C-400 and C-401) and cleanouts (MAG Standard Detail 441).</p> <p>F. Show the following street centerline survey data:</p>	

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Item	Requirement	Comments
	1) Stations at changes in horizontal alignment of the street. 2) For tangents: bearing and distance. 3) For curves: radius, central angle, arc length, and radial bearing for non-tangent curves.	
34.	The minimum cover allowed for a sewer is 4'. If the cover on the sewer service tap is less than 4½' at the property line, the service must be ductile iron pipe and coordination with dry utilities is required.	
35.	Manhole and cover sizes must conform to the following standards:  A. Invert depth less than or equal to 10': 4' diameter manholes, with steps, and with 24" diameter covers.  B. Invert depth greater than 10': 5' diameter manholes, without steps, and with 30" diameter covers.	
36.	All manholes on sewers 18" and larger in diameter and all manholes in arterial streets must have T-Lock PVC linings.	
37.	Bedding must conform to City of Chandler Standard Detail C-402 for all types of pipe at all depths.	
38.	The sewer line slope must be shown and it must meet the minimum requirements. See the sewer system design manual for details.	
39.	The maximum distances between manholes and cleanouts must comply with the following:  A. Lateral sewer (less than 18" diameter) manhole to manhole = 400'.  B. Lateral sewer (less than 18" diameter) manhole to cleanout = 150'.  C. Interceptor sewer (18" and greater diameter) manhole to manhole = 600'.	
40.	Show all crossings of existing utility lines in both plan and profile views:  A. Water and sewer.  B. Reclaimed water (4" or larger).	

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Item	Requirement	Comments
	C. C.I.P. projects also must include telephone, electric, gas, cable, and other buried utilities where appropriate.	
41.	Extra protection (ductile iron pipe or concrete encasement) is required; see MAG Standard Detail 404 for applicability.	
42.	Cap all abandoned sewer taps.	
43.	Show a sewer service tap with station, either sewer station or station in relation to the nearest downstream manhole, for each lot.	
44.	Show a sewer stub-out at each manhole adjacent to undeveloped property, unless otherwise justified. Also, provide sewer stub-outs for all major parcels within, or adjacent to, the development. Wherever possible, extend sewer stub-outs sufficiently beyond paved surfaces to avoid pavement cutting at time of future connection. Show sewer stub-outs in both plan and profile views.	
45.	Reclaimed water lines are required in arterial street rights-of-way adjacent to all projects south of the monument line of Pecos Road.	
	A. Show all existing and proposed reclaimed water lines on the plans.	
	B. Reclaimed water mains must be installed in locations per City of Chandler Standard Detail C-200 unless otherwise determined by the City Engineer.	
	C. A 6' minimum separation is required between reclaimed water and sewer lines.	
	D. A 6' minimum separation is required between reclaimed water and potable water lines.	
	E. Public reclaimed water lines must be 12" in diameter unless otherwise noted on the plans.	
	F. Tees must be spaced at no greater than ¼ mile apart.	
	G. Crosses must be at all intersections of an arterial street with another arterial street.	
	H. Install laterals with a minimum diameter of 8" at all tees and crosses. Extend laterals sufficiently beyond paved surfaces to avoid pavement cutting at time of future connection.	



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Item	Requirement	Comments
	I. Two (2) valves are required on each tee and three (3) valves are required on each cross.	
	J. Valve box installations must conform to City of Chandler Standard Detail C-406, C-317 in areas subject to wheel loads, and C-318; these details must be specified in the construction notes on the plans.	
	K. Plans must refer to valve blocking per M.A.G. Standard Detail 301.	
	L. Valves must not be located in sidewalk or access ramp areas.	
	M. All valves must be stationed on the plans.	
	N. Install a blow off valve at each dead-end of main lines, whether the line will become a wet line or remain a dry line at the end of the project.	
46.	Submit a street cut application to the City. It must be approved by the City Engineer before plan approval. The status of the application is:	
	A. Please submit application.	
	B. Application is currently under review.	
	C. Application has been denied.	
	D. Application has been approved.	
47.	Complete and submit (with mylars for final approval) the Certificate of Quantities, including signature and date, by the civil engineer. A separate Certificate of Quantities must be submitted for each construction phase.	
48.	Complete and submit (with mylars for final approval) a construction quantity estimate certified by a registered civil engineer and a complete set of improvement plans, in addition to all other plans required, for performance bond processing.	
49.	An easement dedication is required by separate instrument. Please provide the following exhibits and/or information along with the easement document:	
	A. Subdivision name.	
	B. Type of easement/right-of-way.	
	C. Reason or purpose of the easement/right-of-way.	
	D. Vicinity map showing major cross streets.	

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Item	Requirement	Comments
E.	Legal description with registered land surveyor certification.	
F.	Detail map showing the easement/right-of-way alignment with dimensions and bearings, true point of beginning.	
G.	Current title report.	

**The improvement plans for this subdivision will not be approved until a construction quantity estimate certified by a registered civil engineer and a complete set of improvement plans are submitted for performance bond processing.**

**Please return this checklist with the next plan submittal**

**City Use Only**

1. Municipal Utilities Department Senior Engineer review?